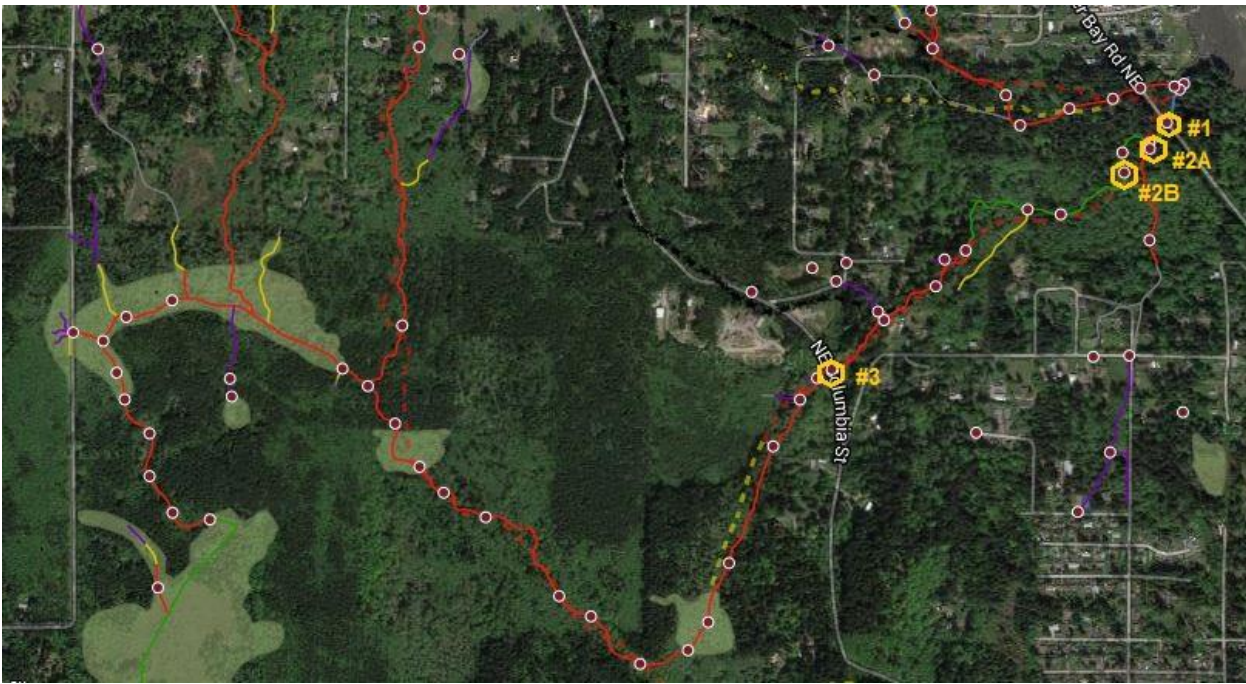


Major Cowling Creek Barriers

The Wild Fish Conservancy watertyping project produced an interactive map that shows several barriers along the creek, which is available at <http://wildfish.beardedmaps.com/?lat=47.785&lng=-122.54&zoom=12>. Screen captures of that work (edited with specific locations) show the barriers along the stream.



- #1 The focus culvert under for the Cowling Creek Culvert replacement Feasibility study
- #2A and #2B Historic chum hatchery creates a barrier. A fish ladder allows salmon to pass.
- #3 Columbia Street culvert. Thanks to Trout Unlimited, a fish ladder now allows salmon to pass.

See next page for details from the WFC study for each of the culverts, except the Miller Bay Road culvert described in detail in the application.

The interactive map shows several culverts that have already been fixed with backyard habitat grants, so are not shown here. (point ID 6405 and 6422). It also shows a number of smaller barriers on the mostly non-fishbearing headwaters that are not noted above.

#2A– Historic Hatchery location.



Point ID:6431

Date:5/26/2010

Reach WW (ft):7

Reach BFW (ft):10

Reach Gradient (%):3-5%

Water Temp (celsius):0

Notes:~2/3 of instream flow passes through an open fishway of the historic chum hatchery structure at Cowling Creek Center, with the other 1/3 entering a pipe that is perched 6 inches above water surface at the opposite end of the old concrete dam. Gravel and s The MB01B "Elder's Tributary" enters MB01-1 South Cowling mainstem from the right bank (lower left in photo). The opening to the fishway through an old concrete hatchery dam is visible in background. Note wire rock gabions to slow channel erosion.

#2B – Hatchery Barrier



Point ID:6432

Date:5/26/2010

Reach WW (ft):7

Reach BFW (ft):10

Reach Gradient (%):3-5%

Water Temp (celsius):0

Notes:Derelict head dam (part of the infrastructure associated with a former chum salmon hatchery at Cowling Creek Center) captures the entire MB01-1 channel in a concrete-lined fishway with a 4.5 ft. outfall that is a total barrier to upstream fish migration a The perched outlet of an old concrete head dam has a 4.5 ft. outfall that is a total barrier to upstream fish migration along South Cowling Creek. The derelict dam is part of the infrastructure for a former chum hatchery operation at Cowling Creek Center.

#3- Columbia Road culvert



Date:5/26/2010

Reach WW (ft):5

Reach BFW (ft):8

Reach Gradient (%):1-3%

Water Temp (celsius):0

Notes:Columbia Street NE culvert is a total barrier, preventing fish from accessing all available habitat in the lengthy upper South Cowling watershed. The 7 ft. pipe was "at grade" when first installed, but decades of erosion have undermined the downstream cha The Columbia Street NE culvert has a 2.5 ft. perch 2.5 ft. above water surface at the outlet, creating a total barrier to upstream fish migration into several thousand meters of potential fish habitat along upper South

Cowling Creek and its tributaries.